IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE

Appl. No.	:	10/525,134
Applicant	:	Adrianus SEMPEL
Filed	:	16 February 2005
TC/A.U.	:	2629
Confirmation	:	1961
Examiner	:	KARIMI, Pegeman
Atty. Docket	:	NL-020757

Title: SYSTEMS AND METHODS FOR DRIVING A DISPLAY DEVICE

APPEAL BRIEF

U.S. Patent and Trademark Office
Customer Window, Mail Stop **Appeal Brief - Patents**
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Sir:

In response to the FINAL Office Action dated 18 August 2008, finally rejecting pending claims 1, 3, 5-11, 14 and 19-23, and in support of the Notice of Appeal filed on 18 November 2008, Applicant hereby respectfully submits this Appeal Brief.

REAL PARTY IN INTEREST

According to an assignment recorded at Reel 017426, Frame 0212, Koninklijke Philips Electronics N.V., owns all of the rights in the above-identified U.S. patent application.

RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences related to this application or to any related application, nor will the disposition of this case affect, or be affected by, any

other application directly or indirectly.

STATUS OF CLAIMS

Claims 2, 4, 12-13 and 15-18 are canceled.

Claims 1, 3, 5-11, 14 and 19-23 are pending in the application.

Claims 1, 3, 5-11, 14 and 19-23 all stand rejected.

Accordingly, the claims on appeal are claims 1, 3, 5-11, 14 and 19-23.

STATUS OF AMENDMENTS

There are no pending amendments with respect to this application.

SUMMARY OF CLAIMED SUBJECT MATTER

The present invention is directed to a di8splay device and a display device driver.[1]

Accordingly, as broadly recited in claim 1, a display device (FIG. 1 – element 1; page 3, lines 21-22) comprises: a number of picture elements (FIGs. 1 & 3 – element 4; page 3, lines 22-23); and a display driver device. The display driver device comprises: driving transistors (FIGs. 1 and 3-5, element 10; page 3, line 31; page 4, lines 3-4) to be connected in series with the picture elements; means (FIGs. 1 & 3 – element 12; page 4, lines 15-16) for monitoring output voltages at output nodes of the display driver device; a feedback mechanism (FIG. 1 – element 8; page 4, lines 12-15) configured to operate in response to the output voltages to control a reference voltage of the display driver device and to maintain substantially constant a voltage value between a supply node (FIGs. 1 & 3-5 – element 11; page 4, lines 18-19) and the output nodes; means (FIG. 3 – elements 24 & 24'; page 5, lines 5-9) for

1 In the description to follow, citations to various reference numerals, figures, and corresponding text in the specification are provided solely to comply with Patent Office rules. It should be understood that these reference numerals, figures, and text are exemplary in nature, and not in any way limiting of the true scope of the claims. It would therefore be improper to import anything into any of the claims simply on the basis of **exemplary** language that is provided here only under the obligation to satisfy Patent Office rules for maintaining an Appeal.

detecting one or more open outputs at one or more of the output nodes of the display driver device; and means (FIG. 3 – elements 26 & 26'; page 5, lines 12-15; FIG. 5 – element 40; page 5, lines 27-29) for inhibiting the feedback mechanism from responding to the output voltages at the one or more output nodes having the open outputs upon detection by the detecting means of the one or more open outputs.

As broadly recited in claim 10, a display driver device comprises: driving transistors (FIGs. 1 and 3-5, element 10; page 3, line 31; page 4, lines 3-4) to be connected in series with picture elements (FIGs. 1 & 3 – element 4; page 3, lines 22-23); means (FIGs. 1 & 3 – element 12; page 4, lines 15-16) for monitoring output voltages at output nodes of the display driver device; a feedback mechanism (FIG. 1 – element 8; page 4, lines 12-15) configured to operate in response to the output voltages to control a reference voltage of the display driver device and to maintain substantially constant a voltage value between a supply node (FIGs. 1 & 3-5 – element 11; page 4, lines 18-19) and the output nodes; and a detector (FIGs. 3 & 5 – elements 24 & 24'; page 5, lines 5-9) including a differential amplifier (FIG. 4 – elements 30, 31 & 31', and 32 & 32'; page 5, lines 16-18) for detecting one or more open outputs at one or more of the output nodes of the display driver device and inhibiting the feedback mechanism from responding to the output voltages at the one or more output nodes having upon detection by the detecting means of the one or more open outputs.

As broadly recited in claim 21, a display driver (FIGs. 1 & 3-5) comprises: a plurality of current sources (FIGs. 1 and 3-5, element 10; page 3, line 31; page 4, lines 3-4) for supplying current to pixels (FIGs. 1 & 3 – element 4; page 3, lines 22-23) of a display device, each current source being connected to an output node of the display driver; means (FIGs. 1 & 3 – element 12; page 4, lines 15-16) for monitoring output voltages at the output nodes; a feedback mechanism (FIG. 1 – element 8; page 4, lines 12-15) configured to operate in response to the output voltages to control a reference voltage of the display driver and to maintain substantially constant a voltage value between a supply node (FIGs. 1 & 3-5 – element 11; page 4, lines 18-19) and the output nodes; and means (FIG. 3 – elements 26 & 26'; page 5, lines 12-15; FIG. 5 – element 40; page 5, lines 27-29) for

inhibiting the feedback mechanism from responding to the output voltages at one or more output nodes which have open outputs.

As further featured in claim 22, the means for inhibiting comprises a plurality of fuses (FIG. 5 – element 40; page 5, lines 27-29).

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The grounds of rejection to be reviewed on Appeal are: (1) the rejections of claims 1-2, 10-11 and 19-20 under 35 U.S.C. § 102 over Karube U.S. Patent 6,456,282 ("Karube"), (2) the rejections of claims 5-7 and 14 under 35 U.S.C. § 103 over Karube in view of Sakamoto U.S. Patent 5,594,463 ("Sakamoto"); (3) the rejections of claims 8-9, 21 and 23 under 35 U.S.C. § 103 over Karube in view of Miyazawa U.S. Patent Publication 2003/0150247 ("Miyazawa"); and (4) the rejection of claim 22 under 35 U.S.C. § 103 over Karube in view of Miyazawa and further in view of Katoh U.S. Patent 5,926,156 ("Katoh").

ARGUMENTS

(1) Claims 1-2, 10-11 and 19-20 are Patentable over Karube

Among other things, the display device of claim 1 includes a feedback mechanism configured to operate in response to the output voltages at output nodes of the display driver device to control a reference voltage of the display driver device and to maintain substantially constant a voltage value between a supply node and the output nodes.

Applicant respectfully submits that Karube does not disclose any display device that includes this combination of features.

The Examiner inconsistently and incorrectly cites elements of completely different embodiments disclosed by Karube in an effort to somehow try to cobble together something resembling the display device of claim 1.

For example, on page 2 of the Office Action, the Examiner states that the output voltages at the output nodes recited in claim 1 correspond to "*voltage* (sic) *at node d at the output of element 11 in FIG. 7*" of Karube. However, on page 3 of the Office Action, the Examiner states that the output nodes of claim 1 correspond to

"*output node a*" of FIG. 11 of Karube.

Applicant respectfully submits that the so-called "*output node a*" of FIG. 11 of Karube does not in any way correspond to the "*voltage* (sic) *at node d at the output of element 11 in FIG. 7*" of Karube - or, more importantly, to the output nodes of the display driver device of claim 1. The Examiner identifies element 3 in Karube as supposedly corresponding to the display driver device of claim 1. From simple inspection of FIG. 2 of Karube it is apparent that the output nodes of the element 3 are the nodes where the signal lines **S** exit the load driver circuits 11 (see also col. 5, lines 51-57). Applicant respectfully submits that the node "*a*" in FIG. 11 is **NOT** an output node of the load driver circuit 11 in the embodiment of FIG. 11. Karube specifically identifies the voltage at node "*a*" in FIG. 11 as being the "**input** video signal" (see FIG. 12 and col. 14, lines 35-37). Indeed the output node of the load driver circuit 11 in the embodiment of FIG. 11 clearly corresponds to the node "*e*" (compare FIGs. 2 and 11 and see, e.g., col. 14, lines 40-11).

Turning back to the Office Action, the Examiner also states that Karube discloses in FIG. 11 a "*Feedback mechanism of Fig. 11*" that controls a "*reference voltage of supply line S at node e*" to maintain substantially constant a voltage value between "*supply node e*" and "*output node of a*."

Applicant respectfully disagrees.

Applicant respectfully submits that it is quite clear, as noted above, that the node "*e*" in FIG. 11 of Karube is the output node – and not a "reference voltage of the display driver device" 3. Instead, Karube very clearly identifies the node "*d*" in FIG. 11 to be the reference voltage (see, e.g., Karube at col. 14, lines 20-21)!

Applicant respectfully submits that it is also quite clear that no "*Feedback mechanism of Fig. 11*" controls the "reference voltage of the display driver device" (the voltage at node "*d*" in FIG. 11).

Additionally, the feedback mechanism of claim 1 is configured to operate in response to the output voltages at the output nodes of the display driver device.

The Examiner cites switch SW12 of Karube as supposedly corresponding to the feedback mechanism of claim 1. However, switch SW12 responds to a timing control signal from switch control circuit 12 which controls all of the switches of FIG.

11 to operate periodically in three cycles: a sampling period, a writing period, and a stable period (see, e.g., FIG. 12 and col. 14, lines 32-35 and 55-58). Switch SW12 does not **operate in response** to any output voltage at any output nodes of "display driver device" 3 of Karube.

Furthermore, claim 1 clearly recites that feedback mechanism is configured to maintain substantially constant a voltage value between a supply node and the output node**s** of the display device driver. Node "*a*" is a single node, and therefore it cannot correspond to the output node**s** of the display device driver 3 (which again, from inspection of FIG. 2 of Karube, must correspond to the nodes "*e*" from all of the load driver circuits 11). So, clearly, Karube does not disclose the display device of claim 1.

Also among other things, the display device of claim 1 includes means for detecting one or more open outputs at one or more of the output nodes of the display driver device.

The Examiner cites elements "12 and 11" as supposedly corresponding to this means, and that an open output corresponds to switch SW10.

Applicant respectfully disagrees.

Element 12 is a switch control circuit (see FIG. 12) which **controls** (turns on and off) the switches in the load driver circuits 11. Switch control circuit 12 does not **detect** any open outputs of switch SW10 or anything else. Furthermore, element 11 is a load driver circuit (which includes switch SW10). Load driver circuit 12 does not detect any open outputs of switch SW10 or anything else. The Examiner does not cite a single line of text anywhere in Karube that discloses that elements 11 and 12 detect any open outputs. Also, it is apparent from inspection of FIGs. 2 and 11 that switch 10 is not located at an output node of element 3 in Karube, which the Examiner says supposedly corresponds to the display driver device of claim 1. Again, Applicant notes that node "*a*" cannot correspond to the output node recited in claim 1.

So again, clearly, Karube does not disclose the display device of claim 1.

Also among other things, the display device of claim 1 includes means for inhibiting the feedback mechanism from responding to the output voltages at the one

or more output nodes having the open outputs upon detection by the detecting means of the one or more open outputs.

As explained above, switch control circuit 12 in Karube controls all of the switches of FIG. 11 to operate periodically in three cycles: a sampling period, a writing period, and a stable period (see, e.g., FIG. 12 and col. 14, lines 32-35 and 55-58). Switch SW12 does not inhibit any feedback mechanism from responding to output voltages at one or more output nodes having open outputs **upon detection of one or more open outputs**.

Accordingly, for at least these reasons, Applicant respectfully submits that claim 1 is patentable over Karube.

Claim 2

Claim 2 depends from claim 1 and is patentable for at least the reasons set forth above with respect to claim 1.

Claim 10

Among other things, the display driver device of claim 10 includes a feedback mechanism configured to operate in response to output voltages to control a reference voltage of the display driver device and to maintain substantially constant a voltage value between a supply node and the output nodes; and a detector including a differential amplifier for detecting one or more open outputs at one or more of the output nodes of the display driver device and inhibiting the feedback mechanism from responding to the output voltages at the one or more output nodes upon detection by the detecting means of the one or more open outputs.

As explained above with respect to claim 1, Applicant respectfully submits that Karube does not disclose any display driver device that includes this combination of features.

Also, Applicant respectfully submits that Karube does not disclose a detector including a differential amplifier for detecting one or more open outputs at one or more output nodes of the display driver device and inhibiting a feedback mechanism from responding to the output voltages at the one or more output nodes upon detection by a detecting means of one or more open outputs.

The Examiner states that:

Karube teaches the display driver device (3) comprising a detector (12) including a differential amplifier (OP1) for detecting an open output

Applicant agrees that OP1 is a differential amplifier. However, OP1 has nothing to do with detecting one or more open outputs at one or more of the output nodes of the display driver device and inhibiting the feedback mechanism from responding to the output voltages at the one or more output nodes upon detection by the detecting means of the one or more open outputs. Indeed, Applicant respectfully submits that the so-called "detector" (switch control circuit 12) clearly does not even "comprise" OP1," as alleged by the Examiner. The Examiner does not cite a single line of text in Karube that discloses that OP1 has anything to do at all with inhibiting any feedback mechanism from responding to output voltages at one or more output nodes upon detection by the detecting means of one or more open outputs.

Accordingly, for at least these reasons, Applicant respectfully submits that claim 10 is patentable over Karube.

Claim 11

Claim 11 depends from claim 10 and is patentable for at least the reasons set forth above with respect to claim 10.

(2) Claims 5-7 and 14 are Patentable over Karube & Sakamoto

Claims 5-7 and 14 depend from claims 1 and 10. Applicant respectfully submits that Sakamoto does not remedy the shortcomings of the shortcomings of Karube as set fort above with respect to claims 1 and 10. Accordingly, claims 5-7 and 14 are deemed patentable over the cited art for at least the reasons set forth above with respect to claims 1 and 10.

(3) Claims 8, 9, 21 and 23 Are Patentable over Karube & Miyazawa

Claims 8 and 9

Claims 8 and 9 depend from claim 1. Applicant respectfully submits that Miyazawa does not remedy the shortcomings of the shortcomings of Karube as set fort above with respect to claim 1. Accordingly, claim 8 and 9 are deemed patentable over the cited art for at least the reasons set forth above with respect to claim 1.

Claim 21

Among other things, the display driver of claim 21 includes means for monitoring output voltages at the output nodes of the display driver; a feedback mechanism configured to operate in response to the output voltages to control a reference voltage of the display driver and to maintain substantially constant a voltage value between a supply node and the output nodes; and means for inhibiting the feedback mechanism from responding to the output voltages at one or more output nodes which have open outputs.

As explained above with respect to claim 1, Applicant respectfully submits that Karube does not disclose any display driver device that includes this combination of features. Miyazawa does not remedy the shortcomings of Karube.

Also among other things, the display driver of claim 21 includes a plurality of current sources for supplying current to pixels of a display device, each current source being connected to an output node of the display driver.

The Examiner fairly admits that Karube does not disclose any plurality of current sources.

Instead, the Examiner states that Miyazawa discloses a plurality of current sources.

M.P.E.P. § 2142 provides that:

> "*rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." In re Kahn, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336*

(Fed. Cir. 2006). See also KSR, 550 U.S. at ___, 82 USPQ2d at 1396 (quoting Federal Circuit statement with approval)."

Here, the Examiner has not provided any articulated reasoning with any rational underpinnings to support the legal conclusion of obviousness.

Applicant respectfully submits that one skilled in the art would never modify Karube's circuit as proposed by the Examiner.

Accordingly, for at least this additional reason, Applicant respectfully submits that claim 21 is patentable over the cited art.

(4) Claim 22 Is Patentable over Karube, Miyazawa and Katoh

Claim 22 depends from claim 21. Applicant respectfully submits that Katoh does not remedy the shortcomings of Karube and Miyazawa as set forth above with respect to claim 21, so claim 22 is deemed patentable for at least the same reasons as claim 21, and for the following additional reasons.

The Examiner fails to explain how or where fuses would supposedly be added to Karube's switch control circuit 12 to inhibit the "feedback mechanism" of the load driver circuit 11 in the embodiment of FIG. 11. It is noted that Katoh discloses fuses, but Katoh's fuses have nothing to do with inhibiting any feedback mechanism configured to control a reference voltage of the display driver and to maintain substantially constant a voltage value between a supply node and the output nodes

Applicant respectfully submits that one of skill in the art would never modify Karube to have any fuses in switch control circuit 12 to inhibit the "feedback mechanism" of the load driver circuit 11 in the embodiment of FIG. 11.

Therefore, Applicant respectfully traverses the proposed combination of references.

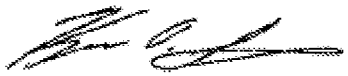
Accordingly, for at least these additional reasons, Applicant respectfully submits that claim 22 is patentable over the cited art.

In conclusion . . . for all of the foregoing reasons, Applicant respectfully submits that claims 1, 3, 5-11, 14 and 19-23 are all patentable over the cited prior art.

Therefore, Applicant respectfully requests that the rejections of claims 1, 3, 5-11, 14 and 19-23 be withdrawn, the claims be allowed, and the application be passed to issue.

Respectfully submitted,

VOLENTINE & WHITT



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CLAIMS APPENDIX

1. (Previously Presented) A display device comprising:

a number of picture elements; and

a display driver device, comprising:

driving transistors to be connected in series with the picture elements;

means for monitoring output voltages at output nodes of the display driver device;

a feedback mechanism configured to operate in response to the output voltages to control a reference voltage of the display driver device and to maintain substantially constant a voltage value between a supply node and the output nodes;

means for detecting one or more open outputs at one or more of the output nodes of the display driver device; and

means for inhibiting the feedback mechanism from responding to the output voltages at the one or more output nodes having the open outputs upon detection by the detecting means of the one or more open outputs.

2. (Previously Presented) The display device as claimed in claim 1, further comprising means for signaling when an output voltage reaches a threshold voltage.

5. (Previously Presented) The display device as claimed in claim 1, wherein the feedback mechanism further comprises a control circuit for signaling a difference between an output voltage of the display driver device for a picture element and the reference voltage being below a threshold voltage.

6. (Previously Presented) The display device as claimed in claim 5, wherein the means for detecting the open output are configured to perform the detecting after the signaling.

7. (Previously Presented) The display device as claimed in claim 5, wherein the means for detecting includes a differential amplifier.

8. (Previously Presented) The display device as claimed in claim I, wherein the display driver device comprises current sources each including one of the transistors, and the feedback mechanism is configured for keeping substantially constant a difference between an output voltage of the display driver device for a picture element and the reference voltage.

9. (Previously Presented) The display device as claimed in claim 1, wherein the picture elements include a luminescent element having a luminescence determined by first current.

10. (Previously Presented) A display driver device comprising:

driving transistors to be connected in series with picture elements;

means for monitoring output voltages at output nodes of the display driver device;

a feedback mechanism configured to operate in response to the output voltages to control a reference voltage of the display driver device and to maintain substantially constant a voltage value between a supply node and the output nodes; and

a detector including a differential amplifier for detecting one or more open outputs at one or more of the output nodes of the display driver device and inhibiting the feedback mechanism from responding to the output voltages at the one or more output nodes having upon detection by the detecting means of the one or more open outputs.

11. (Previously Presented) The display driver device as claimed in claim 10, further comprising means for signaling when an output voltage reaches a threshold voltage.

14. (Previously Presented) The display driver as claimed in claim 10, wherein the feedback mechanism further comprises a control circuit for signaling a difference

between an output voltage of the display driver device for a picture element and the reference voltage being below a threshold voltage.

19. (Previously Presented) The display device of claim 1, wherein the means for inhibiting includes a plurality of switches connected between the supply node and the output nodes, wherein one or more of the switches are opened upon detection of the one or more open outputs.

20. (Previously Presented) The display driver device of claim 10, wherein the detector includes a plurality of switches connected between the supply node and the output nodes, wherein one or more of the switches are opened upon detection of the one or more open outputs.

21. (Previously Presented) A display driver, comprising:

a plurality of current sources for supplying current to pixels of a display device, each current source being connected to an output node of the display driver;

means for monitoring output voltages at the output nodes;

a feedback mechanism configured to operate in response to the output voltages to control a reference voltage of the display driver and to maintain substantially constant a voltage value between a supply node and the output nodes; and

means for inhibiting the feedback mechanism from responding to the output voltages at one or more output nodes which have open outputs.

22. (Previously Presented) The display driver of claim 21, wherein the means for inhibiting comprises a plurality of fuses.

23. (Previously Presented) The display driver of claim 21, further comprising means for detecting one or more open outputs at one or more of the output nodes, and wherein the means for inhibiting includes a plurality of switches connected between the supply node and the output nodes, wherein one or more of the switches

are opened upon detection of the one or more open outputs.

EVIDENCE APPENDIX

{None}

RELATED PROCEEEDINGS APPENDIX

{None}